UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,200	11/12/2003	Joel A. Kubby	118449	8292

7590 05/27/2005

Oliff & Berridge, PLC
P.O. Box 19928
Alexandria, VA 22320

EXAMINER	
DUPUIS, DEREK L	
ART UNIT	**PAPER NUMBER**
2883	

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/712,200	KUBBY ET AL.	
	Examiner	Art Unit	
	Derek L. Dupuis	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *10-15* is/are allowed.

6)☒ Claim(s) *1-9, and 16-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/13/04 & 2/26/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on 7/13/2004 and 2/26/2005 have been considered by the examiner.

Drawings

2. The drawings were received on 11/12/2003. These drawings are accepted by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 4, 6-9, 16, 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Agrawal et al (US 2002/0011758 A1)*** and further in view of ***Labeye et al (US 5,612,815)***.

5. Agrawal et al teach a switch shown in figures 13-18 that comprises a thermal drive actuator (1300a) having associated thermal latching actuators (1300b and 1300c) wherein each thermal latching actuator has translating latch teeth (as seen best in figure 14). The switch includes a movable portion (load 1370) connected by suspension elements (arms of the actuator). Tether (1360a) connects the thermal drive actuators to the movable portion. A linkage defining one or more linkage teeth for orthogonal connection to the translating latch teeth is included and is located in such a way so as to determine one or more latched state positions when electrical

stimuli is timed to actuate the thermal drive and thermal latch actuators so as to switch between equilibrium and a latched state (see figures 13-18, and paragraphs 4, 9, 48, 53, and 105-113). The movable platform can be moved bi-directionally as shown in figure 10.

6. Agrawal et al do not teach that the movable portion is a movable waveguide portion that includes a plurality of optical waveguides used for switching. Labeye et al teach an optical switch with an optical waveguide portion suspended by flexible arms that includes a plurality of waveguides on the movable portion so as to switch signals along various optical paths as shown in figures 3 and 4. Labeye et al teach that the switch can be formed by fabricating the switch in the device layer of an SOI wafer and that the switch can be released from the wafer by etching of the buried oxide layer (see column 2, line 55 to column 3, line 25).

7. It would have been obvious to one of ordinary skill in the art at the time of invention to use the switch of Agrawal et al for optical switching as taught by Labeye et al. Motivation to do this is Agrawal et al's suggestion that the switch can be used in "numerous applications including but not limited to switches". Further motivation would be that the movable waveguide platform of Labeye et al is desirable in the art of optical switching because it eliminates the need for switching device cascades (see column 3, lines 60-62) thereby making more efficient than optical mirror switches.

8. Claims 2, 5, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Agrawal et al (US 2002/0011758 A1)*** in view of ***Labeye et al (US 5,612,815)*** as applied to claims 1, 3, 4, 6-9, 16, 17, 19, and 20 above, and further in view of ***Lee et al (NPL)***.

9. Neither Agrawal et al nor Labeye et al teach that the movable waveguide portion is suspended by folded springs. Lee et al teach an optical switch that is supported by a series of

folded springs as shown in figure 1. The spring induces an increased or decreased stiffness to the movable platform and actuator arms. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the switching device of Agrawal et al in view of Labeye et al by including a folded spring suspension system as taught by Lee et al. Motivation to do this would be that the spring would act as a "fail-safe" for the switch system (see the "Design and Fabrication" section of Lee et al).

Allowable Subject Matter

10. Claims 10-15 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter:

12. Claims 10-15 are allowable over the prior art of record because the latter, either alone or in combination, does not disclose nor render obvious an optical latching switch including thermal drive actuators and thermal latching actuators with latching teeth and a linkage portion including linkage teeth for connection to the latching teeth wherein the connected teeth connect a tether to a hitch that is attached to a thermal drive actuator in combination with the rest of the claimed limitations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Derek L. Dupuis
Group Art Unit 2883

Frank G. Font
Supervisory Patent Examiner
Technology Center 2800